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# supernova

The mag for curious kids



THE DARK SIDE OF THE MOON

p.8



p.32

CARS THROUGH THE AGES



p.36

FRIDA KAHLO

VOL 8.3



# FROGS!

6 FUN SOUTH AFRICAN FOLKTALES

p.40

FLAGS OF THE WORLD

p.20

FROM TAD TO TOAD



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# **SCHOOLS COMPETITION**



**AND STAND A  
CHANCE TO WIN  
R240 000 WORTH  
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# The BIG Picture



Photographer: Berry J

## Royal pavilion in Phraya Nakhon Cave in Thailand.

Built in honour of one of Thailand's most beloved monarchs, King Chulalongkorn, the Khuha Karuehat pavilion is a small paradise hidden within the mountain. The pavilion or *sāh-lah*, is painted gold with a blue gabled roof, colors of Thai royalty. The Phraya Nakhon Cave formed naturally through erosion of the limestone. Stalagmites, stalactites and moss create interesting textures on the cave walls. The open cavern roof makes a natural spotlight on the pavilion and provides sunlight for the little forest.







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# Hi SuperKids

**T**here's a coming-of-age here at *Supernova*. Like any coming-of-age from childhood, it comes as a bit of a surprise, it's a little strange and confusing, it's awkward, but it's also the beginning of something new and exciting. There are so many changes and transitions, but it means there are new responsibilities, new benefits and new joys to be discovered. Some things are left behind and some are taken on. The whole process is somewhat daunting, but we all grow up eventually.

You might also be thinking of growing older and how life may change for you over the years. Rest assured that so many others before you have travelled this road as well. Think also of the natural world around you and how it too faces its own challenges of growing, changing and maturing.



A tadpole for instance will go through so many different stages in its life before developing into a fully functioning frog. Find out about the life-cycle of frogs and fascinating species like the ghost frog and giant bullfrog (p.26).

Even history and human development goes through cycles. The history of cars is filled with constant changes and developments (p.32), but would you say it has reached its own coming-of-age? It seems that there are many more electrifying things to come.

Find out how Frida Kahlo struggled with many difficult choices in life and heartfelt circumstances to become a world-famous artist (p.36).

And explore some of the stories we've passed down over generations to make sense of the strange world around us (p.40).

Don't be afraid of things changing and think rather that the world is always changing, or as philosophers would say "nothing is constant but change". Consider yourself as part of the world and that change is indeed a wonderful part of life.

sn



Looking for more?



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# In this issue



## The Pinboard

By you. For you.



6

## The Pro-files

Magician



11

## Writing Whiz

Tragedy

13

## Andy's Atlas

Stonehenge

14

## The Chatroom

Big Cat Rescue



16

## Life, the Universe and Everything

## Flags of the World

Can you guess them?

20

## Acquired Tastes

Is this on your menu?

22

## Get Active

Indoor Skydiving

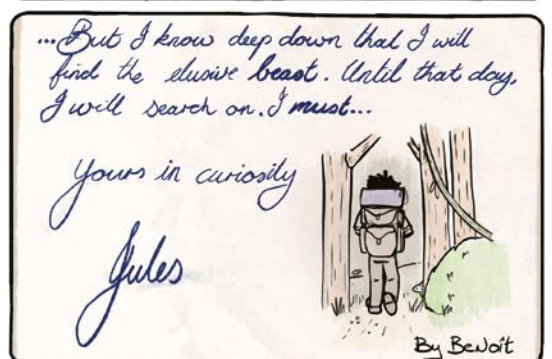


44

## The Chill Zone

Games and solutions

46



36



40

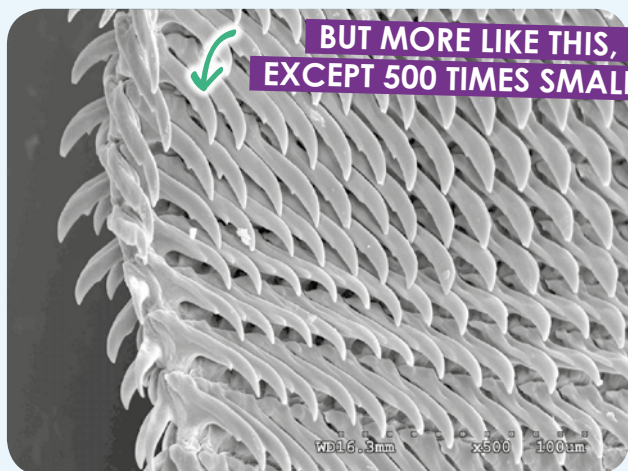


This might look like a crazy video game controller, but it's actually a steering wheel for a Formula One race car! It even has a built-in LED screen. I hope it comes with a manual. Check out our feature article on the history of cars on page 32 for more.



## Ask Jules?

### Do snails have teeth?



Ashton (13) asked us about our slow-moving friends. This is what we found out:

These slimy little critters do actually have teeth, and quite a few at that! They're noisy eaters, believe it or not. The average garden snail has around 2 640 teeth, and some common species have up to 14 000! The teeth point inward so that the snail can have a firm grasp on its food: with about 33 teeth per row and a minimum of 80 rows, the teeth form a multi-toothed ribbon, called a radula.

In the fourth century BC, Aristotle noted that a snail's teeth are "sharp and small and delicate" and that they continuously fall out to make space for new choppers. Garden snails use these teeth to help them eat, cut, and scrape fungi, rotting leaves, lush plants and even soil – no wonder they're so pesky to have in your garden.



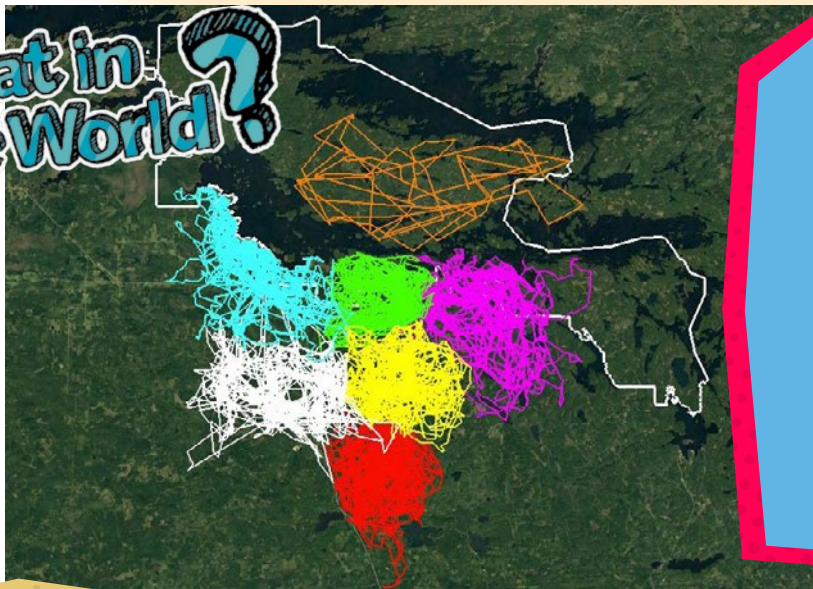
**THE TABLES HAVE TURNED!**

**Okavango Delta, Botswana**

A note from the photographer:  
 This image shows an African wild dog pup playing with a tranquilizer dart. After we anaesthetised an adult individual in a pack, this pup was giving us a hard time to recover the dart and seemed very proud of his newly found toy.

Photo kindly supplied by the British Ecological Society  
 Credit: Dominik Behr, University of Zurich and Botswana Predator Conservation Trust

**What in the World?**



**CAN YOU TELL WHAT'S SHOWN IN THIS PICTURE?**

Is it the *Supernova* illustrator's latest scribble artwork?  
 Is it a strange stack of coloured yarn?  
 Or maybe it's one of those pictures where you squint really hard until you see a dinosaur?  
 What could it possibly be?  
 Give it your best guess and go to p. 49 for the solution.

**Thebes, Ancient Egypt**

The Rhind Mathematical Papyrus is one of the most famous examples of Ancient Egyptian Mathematics. It has 84 different mathematical problems, such as how to distribute 100 loaves of bread among a workforce. It is a collection of exercises for students and it includes fractions, algebra, geometry and arithmetic. This papyrus was placed on its owner's tomb as a sign of his highly educated status. Today, the papyrus is kept in the British Museum.

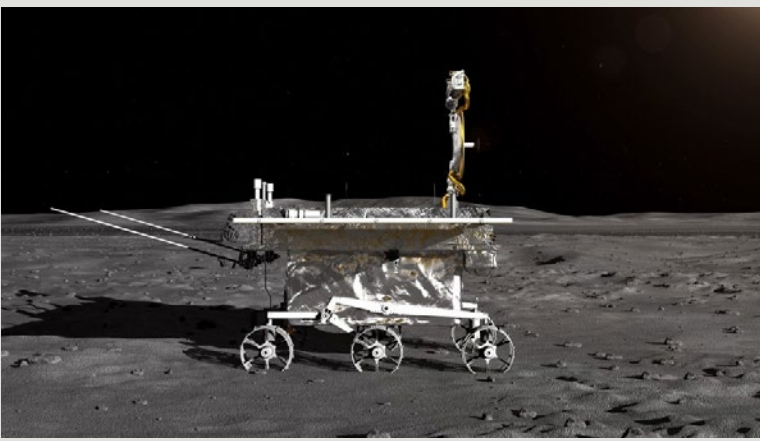
Do some research about how it got its name.  
 Can you think of a better one?





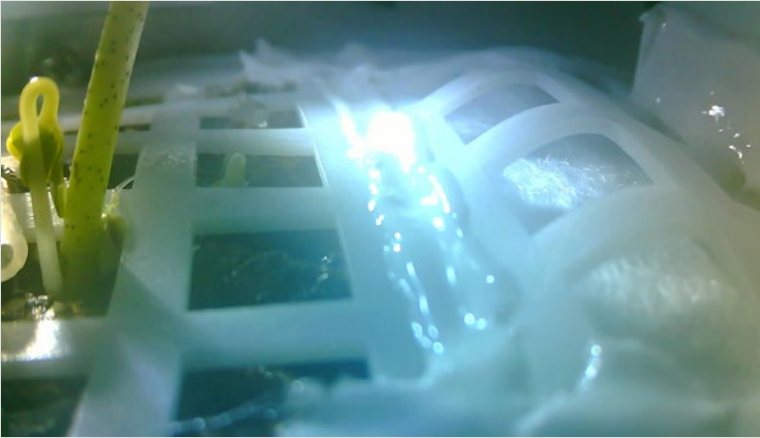
## The Dark side of the moon

The "dark side" here has nothing to do with the ominous force that turns Jedi evil. In fact it is the commonly used term to describe the far side of the Moon. Calling it the dark side is misleading, because both sides of the moon experience two weeks of sunlight and two weeks of night. Only one side of the Moon is visible because the Moon rotates on its own axis at the same time that it takes to rotate the Earth. The slow rotation makes it appear as if the same side is always facing Earth. It's as if the Earth and the Moon are doing a perfect little dance.



### ● The probe of the dark side

- China's Chang'e 4 probe is the first to land on the far side of the moon
- and has sent pictures of a rocky and illuminated landscape. No lander has ever been to the far side of the moon. The Chinese team could not communicate with the probe directly, and had to use a satellite to control it remotely.
- In the last 15 km, the probe used rocket boosters to slow its descent, with no remote control.



### ● Farming on the moon

- The first cotton plant has sprouted and died on the moon. China's Chang'e 4 probe contained a groundbreaking lunar mini-biosphere experiment. It's a bucket-like container with the air, water, nutrients, controlled temperature and humidity needed for successful growing. It didn't last long, but it was the first ever moon garden!
- It's a big step towards future space travel.



### ● A photo worth a thousand worlds

- Nearly every glittering spot in this image, called the 'Celestial Fairy Lights', is a star.
- Classified as NGC 1898, the globular star cluster is found towards the centre of the Large Magellanic Cloud, our closest galactic neighbour. The image was taken by the Hubble Space Telescope to determine if all the stars within the cluster formed at the same time. Images taken by the Hubble have helped scientists determine the age and size of our universe and how planets and galaxies form.
- 



### ● The brightest thing in the universe

- This is a bright quasar. It shines as brightly as 600 trillion suns! Researchers recently spotted and catalogued it as J043947.08+163415.7. But what is a quasar?
- Quasars are star-like astronomical objects of extremely high luminosity found in the centre of some galaxies. They are powered by gas spiralling at a high speed into supermassive black holes. The quasar is so many light years away that it allows astronomers to sample light from the dawn of the universe!
-

# The Saxophone

**FUN FACTS!**

The saxophone is well known as both a classical and jazz music instrument.



There are 6 different sizes of Saxophones

The largest saxophone in the saxophone family is the sub contrabass. It is over 2,25 metres tall!



The famous saxophonist, Kenny G, holds the world record for the longest note ever played on a Saxophone at 45min 47sec.



Adolphe Sax is the only person to have created an instrument all by himself.



The saxophone is played alongside true brass instruments. But it belongs to the woodwind family as it has a wooden mouthpiece called a reed.



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Hi! My name is Wian van den Berg and I am a full time magician and illusionist. I have been performing tricks and illusions for 9 years now.

# Magician

## What was the first trick that inspired you to be a magician?

A magician I saw on TV tore up a photo with someone's name on it, and then put all the pieces back together. The cool part was that the pieces were put back together the wrong way, but it was still signed to prove it was the same photo. I sat for hours trying to figure the trick out.

## What's your favourite magic trick?

I have so many! My top ones are: I put someone's phone inside a glass bottle, and while it's in there, I change a photo that is only on their phone; tying my untied shoelace by just giving my shoe a shake; and throwing a signed card through a window.

## Do you prefer performing for kids or adults?

Both. Kids like to scream and pull at me when they're amazed, while grown-ups want to see more complicated tricks. Sometimes the tricks make adults feel like kids, and they start jumping up and down and pulling at me.



## How can a kid become a magician like you?

My best advice is to just watch as many magicians as possible. Search the internet or watch them on TV. You will find tutorials here and there on some tricks, and with practise, get better and better. Like with anything, spending a lot of time on something always pays off.

# YES YANGA!

## FROM 3 TINS TO CRICKET CHAMPION



'Throw it with us standing in your way.'  
And the tins tumble!

Artwork by Mogau Kekana and Refiloe Moahloli

### How to play three tins:

- 1** Make two equal teams. Each team will get a chance to be fielders or bowlers. Pack three empty food tins on top of each other (baked beans, tomatoes, or tinned corn are the right size).
- 2** Decide how far away from the tins the bowler should stand, depending on how well they can throw. The bowler can throw over- or underhand to try and knock down the tins, and if he or she gets it right, they need to run and restack the cans before the fielders can catch the ball and tag the bowler.
- 3** The bowler gets three turns, with each successful throw giving a point to their team, and each unsuccessful one gives a point to the opposite team. Being tagged by the fielders also give the fielders team a point. After three turns, someone else from the bowler's team gets to bowl, until everyone has bowled, then switch teams.

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In the latest edition by author Vanessa Smeets, we write in the tragedy genre. Let your imagination run wild and complete the rest of this tragedy.



## The Orphan

When Jimmy was four years old, his life changed completely.

He lost his parents in a car accident and was sent to live in an orphanage with his sister, Gemma. Gemma was a little younger and got adopted quickly. Jimmy waited and waited...

"Is something wrong with me?" he asked the matron.

"No, sweetheart. It's just that older children take longer to get adopted.

"Why is that? Look at me! I can talk. I can walk. I can clean myself."

The matron giggled.

Although Jimmy was, as he pointed out, so complete, he felt really incomplete without a family.

### Story to complete...

Write two or more paragraphs (250 to 500 words) to complete this short story.

Send your entries to [mail@kidsmag.co.za](mailto:mail@kidsmag.co.za)

Words by Vanessa Smeets

Illustration by Kerry Moolman

### Elements it should include:

Tragedy hits the main character (tears of sadness).

Someone important dies.

Main hero might even die.

### Optional extra details:

Things go wrong for the hero in a terrible way.

Audience must feel sorry for the main character.

### To help:

**First paragraph:** What happens next? Does Gemma's new family come for Jimmy?

**Second paragraph:** Will Jimmy realise the beauty of life? Does he find joy in other ways? Who does he meet?

**Next:** Can your readers relate to the main character and feel sorry for him/her?



One of the most extraordinary sites I've ever seen is Stonehenge. Tourists wander in silence around this famous prehistoric monument, pondering its origin, significance and sheer size.

# Stonehenge

## What on Earth is a henge?

A henge is a large Neolithic earthwork that features a ditch inside a ring-shaped bank. It also consists of a circle of upright stone or wooden pieces in its centre.

Stonehenge, a UNESCO World Heritage Site near Amesbury in Wiltshire, England, is a henge monument with a unique stone circle. Its internal and external banks, and circular ditch were built around 3000 BC.





Stonehenge, as seen from above

## A unique stone circle

The stone circle was erected around 2500 BC. It's the only surviving lintelled stone circle in the world. This means that it's the only stone circle to feature horizontal supports across the top, like a door or window.

It's also the most architecturally sophisticated stone circle, consisting of large sarsens (a type of sandstone boulder) and smaller bluestones. There are also four Station Stones on the outer edge.

The sarsens were brought from 30.5km and the bluestones from 250km away. They were erected using perfectly interlocking joints. This isn't seen at any other prehistoric monument.

## Why was Stonehenge built?

There are many different theories as to why prehistoric people built Stonehenge. Some theories have included a coronation place for Danish kings, a Druid temple, a place of ancestral worship and a centre for healing. It's also been said that it was used to predict eclipses and solar events. The most generally accepted theory today is that it's a prehistoric temple aligned with the sun's movements.

What we do know is that the earliest stage of the monument is one of the largest cremation cemeteries of prehistoric Britain ever found. The surrounding ancient landscape has more than 350 burial mounds besides other major prehistoric monuments, like Stonehenge Avenue.



A reconstruction showing the raising of a stone in the outer sarsen circle.

*Illustration by Peter Lorimer, Historic England*



# BIG CAT RESCUE

Illustrations by Johann Smith

Interview by Kendall Behr



Have you ever been to a venue and petted the baby lions or other big cats? Unfortunately, some of these cute little animals have faced a grim past and more recently undergo worse mistreatment as trained animals. In the Western Cape there is a rescue center for these previously caged lions that offers a new hope and an opportunity to feel grass under their feet!



We chatted to Cathrine from Panthera Africa about what they do at a rescue centre.

## How do baby lions end up in interaction centers and not with their mothers, and why is this a bad thing?

The lion cubs are taken away from their mothers as young as 3-10 days old, even if the mother can take good care of them. This leaves both the mom and the cubs very sad and scared. The reason for this is that the centers want to make money from tourists that pay to take photos with the small cubs. Always ask yourself: *would I like to be touched by strangers every day? Would I like to be taken away from my mom?* If you wouldn't like it, then you can be sure the animals don't like it either.



## What does Panthera Africa do?

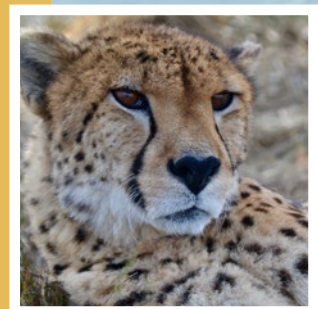
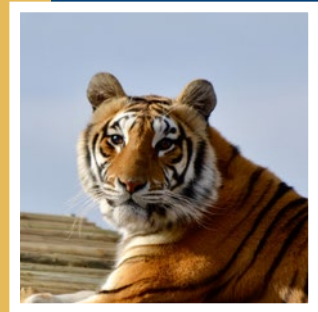
Panthera Africa is a rescue center for captive-born, neglected, big cats. We give big cats the ability to live a life filled with love, respect and lots of fun! We educate people about the animals and share their stories, so that you can also help to be the voice of the animals and tell your friends and family what good animal welfare is.

## Are zoos an example of bad animal welfare?

I personally feel that most zoos have enclosures that are too small, do not keep a high standard of animal welfare, and don't provide enrichment and education for the visitors. There are some international zoos that have got great standards, but this is unfortunately not the norm yet.

In an ideal world there should be no animals in captivity as they belong in the wild. There are so many animals suffering that there is a need for sanctuaries, like Panthera Africa, that can give animals a beautiful, big space to live in and be treated with the same love and respect with which we all would like to be treated.

The most important thing to remember is: put yourself in the same situation and ask yourself if you would be happy in the situation they are in, whether it is to be touched by thousands of people every week, to be sat or ridden on, to live in a tiny room without any toys, friends or family, or to be taken away from your mother when you are very young. I believe all of us would say no to all these situations, which is why we must say no to visiting places that support these practices, and only support places that take very good care of the animals!



## Q. How can kids get involved?

Make donations to organisations like Panthera Africa, Four Paws and The Endangered Wildlife Trust.

Contact the Department of Environmental Affairs and make your views on caged big cats known.

Go to your local zoo and find out how you can help to improve the enclosures that house the big cats.

# Life, the universe and everything

# ALL THINGS TINY

## That's a teacup, not a bed!

Teacup pigs are some of the tiniest pets around. A baby teacup pig can fit comfortably into a teacup. Teacup pigs are great pets for people who suffer from allergies because they're hypoallergenic (they have hair instead of fur).

## Sure makes it easy to tidy up your bedroom

Teddy bears are the perfect cuddling companions, the bigger the better! South African artist Cheryl Moss managed to build a perfectly-shaped bear that is only 4.5mm big! It's name is Tiny Ted.



## Thumbs Up!

Pygmy marmosets flit around in the trees in South America. Because they don't have opposable thumbs, they're classified into a different group from other marmosets. The adults are the size of the average adult human palm, but the babies are the size of your thumb.

Join us for  
"high" tea.





### Ripe for the... licking?

The *Wolffia globosa* (or Aisan watermeal) is approximately the size of an ant and is the tiniest flowering plant in existence. This bright green plant has an oval shape and is the smallest genus of the aquatic plants known as duckweeds. This plant can be found floating in freshwater lakes and streams where it produces the world's smallest fruit.

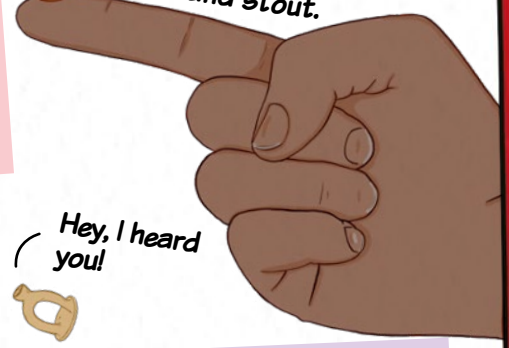


### Tiniest teacup not included

This minute teapot was crafted out of clay, Chinese style, by Wu Ruishen. It's so small that you can hold it on your fingertip! It weighs 1.4 grams and is beautifully finished. Perfect for a doll's teaparty!



*I'm a tiny teapot,  
short and stout.*



*Hey, I heard  
you!*



*Hey shor-ty.*



### My other height is at home

Chandra Bahadur Dangi holds the Guinness World Record for the shortest human adult in history. He was 54.64cm high (almost 2 full rulers). He was a primordial dwarf, which means that he stayed the same height all his life. .



### Stop horsing around and listen

The stapes is the smallest and lightest bone in the body. It's found in the middle ear. Its job is to conduct vibrations and sounds to the inner ear. It's called the stapes because of its stirrup-like shape (stapes is the Latin word for stirrup).

### Nano lives matter

Nanobes barely touch the requirements to be considered living creatures. These microscopic beings are 1000 times smaller than body cells (approximately 150 nanometers long) and were discovered by the Australian scientist Dr Philippa Uwins during an oil-drilling-expedition.



# FLAGS OF THE WORLD

1

2

3

A



B



C



D



E



# T

he study of the history, symbolism, and usage of flags is called vexillology. There are currently around 197 countries in the world, and each of these countries has a national flag that is intended to be an emblem of that country. Some of these flags have been around for ages. Some are rather new, and as you'll see, some are rather strange. Try and identify these flags of the world – if you get stuck, take a peek at the answers on page 49.

## 4



## 5



## 6



# Acquired Tastes

Admit it, your favourite thing about a Sunday afternoon is probably being able to snack on koeksisters with Rooibos tea or having some of your Gogo's famous Mogodu with ting or rice for lunch. Or, better yet, being able to nibble on the biltong your dad secretly hides away in the cubbyhole of his car. You probably love South African dishes like chakalaka and pap and bunny chow, and who'd blame you? It's one of the many things that make our country so special. But have you ever been brave enough to try some of our slightly slimy delicacies that aren't so easy to swallow? Well, what are you waiting for? Grab a plate and join our feast!



## Smileys

Smileys (or boiled sheep's head) is a traditional Xhosa dish that is a delicacy in most rural areas of our country. Yes, you guessed correctly, this dish gets its unique name from the grimace (that looks like a smile) on the sheep's face when it's served after being spiced and baked for several hours. The meat is usually served on the sheep's skull itself, but can also be served in stews or with a side salad. Try to not only indulge in the delicious meat of the head itself, but also taste the brains and eyes – if you're brave enough!

Words by Venetia Beytall

Illustration by Kerry Moolman



## Amasi

You've probably seen this treat a dozen times before in the dairy aisle of your local supermarket, but have you ever picked up a carton? Amasi is fermented milk (the milk has been chemically broken down by bacteria). Contrary to popular belief, it isn't sour and still tastes perfectly delicious when guzzled down as is or topped over pap as a nutritious breakfast alternative. Fermented milk is rich in antioxidants and very healthy.



## Mopane worms

Are you tired of snacking on the same old popcorn at movie nights? Why not switch to a traditional snack like dried mopane worms? This South African delicacy, which originated in Zimbabwe, is the caterpillar of a large species of emperor moth and contains three times the amount of protein found in beef. Another advantage: Mopane worms are very affordable and easy to come by. If you don't feel like snacking on them dry, you can always boil them in a tomato and garlic sauce and serve them with a side of pap.

## Ostrich eggs

Have you ever felt that your scrambled eggs just don't seem to fill you? The solution? With one ostrich egg being the equivalent of approximately 12 normal eggs, your days of being hungry are long gone. Ostrich eggs are richer in taste than chicken eggs and taste their best when fried, scrambled or made into a cheese omelette. The best place to find fresh ostrich eggs is the ostrich capital of South Africa, Oudtshoorn, in the Karoo.

4



## 5 Skilpadjies

Skilpadjies (which translates to 'little tortoise' in English) is named so because of its appearance. This dish (which looks like little tortoise, mice or bats) is a lamb's liver which has been wrapped in caul fat (the fatty membrane surrounding the lamb's kidneys) that is braai-ed. This delicacy is rich in iron and Vitamins A and B12. It tastes best when served with thickly buttered slices of toasted white bread.



## 7 Beef tongue

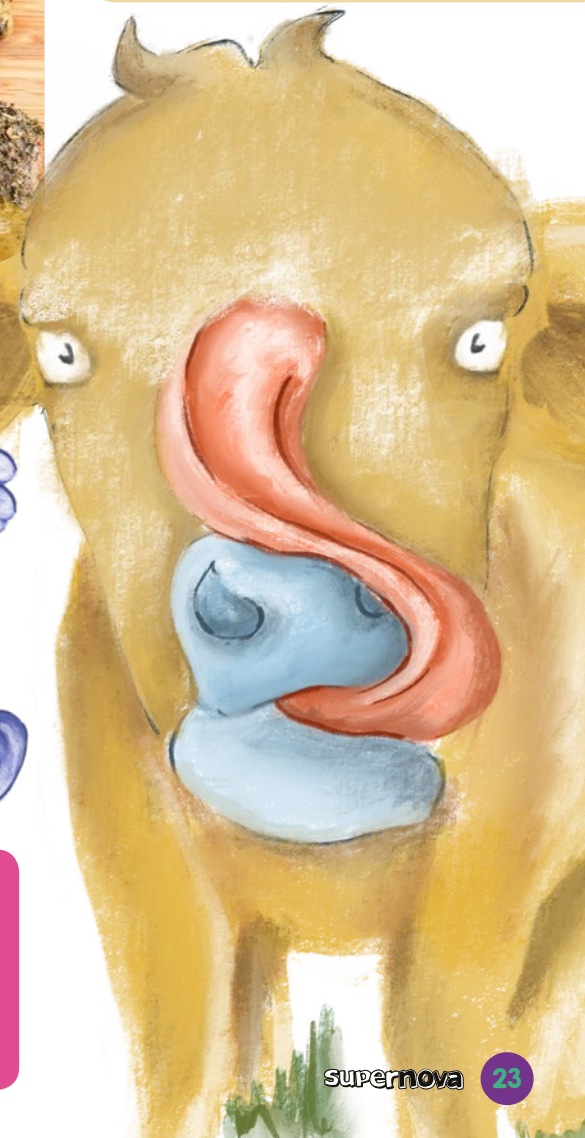
Although the thought of swallowing a tongue might seem too slimy to consider at first, we definitely saved the best for last! This delicacy tastes delicious on sandwiches or served as a cold meat at Christmas dinner. It can also be cooked and served hot with mustard sauce.

## 6 Walkie talkies

Walkie talkies, a popular South African street food, are chicken feet (walkie) and heads (talkie) that have been grilled or covered in batter and deep-fried. This low-fat treat is high in protein and is said to taste its best when served as an appetizer at a braai with pap and a tasty sauce.



Whether you choose to swap out your cornflakes for pap-and-Amasi in the mornings, pack beef tongue sandwiches as your school lunch or demand mopane worms before dinner, delve deeper into the diverse menu that is South African cuisine. Looks can be deceiving. Your taste buds might very well surprise your eyeballs (about the taste of eyeballs)!



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# Butterfly House

Can you find all these hidden pictures?

spool of thread, turtle, pelican, toothbrush, banana, muffin, frying pan, hammer, hoe, mushroom, dolphin, bird, sailboat, coffeepot, fish, penguin, crayon, nail, pushpin, boot, bowling pin, flashlight, goose, candle, shovel, coat hanger, baseball bat, chicken, owl, canoe, pennant, spatula, carrot, iron, eyeglasses, slice of pie, handbell, paddle, teacup



©Highlights™

Illustrated by Linda Weller

Solutions on page 47

supernova

25



# FROGS

Illustrations by Benoit Knox and Johann Smith



Painted reed frog

Since I was little, frogs have always amazed me. They were part of my fairy tales and stories and I even had some in my garden.

I caught tadpoles in jars and used to save froglets from the pool. At night I would listen to their raucous singing.

Since then I've always kept my eye out for frogs. Whether on a walk in the park or on an adventure in the wild, there are always fascinating frogs to be found.

# A diversity of frogs

?! GET THIS...

The world's frog population is varied and diverse. Scientists believe that there are over 4 000 different kinds of amphibians on Earth. Frogs form a part of this group.

In South Africa, we have our own large variety of frogs, which ranks us 27<sup>th</sup> in the world of amphibian species richness. This means that frogs like to call South Africa home. You can find the giant bullfrog, which grows up to 245mm in length, and you can also find the tiny northern moss frog, which is a mere 14mm in size. We also have a colourful frog selection, such as the painted reed frog, the rubber frog species and the Tree frog species.

It comes as no surprise that KwaZulu-Natal has the largest number of frog species in SA. This is because of the forest-rich areas that you can find in this province. Different species can thrive in a range of different habitats, including aquatic, such as the platanna; arboreal, the tree and reed frogs; fossorial, rain frogs and shovel-nosed frogs; and the terrestrial toad species.



River frog



Guttural toad

## Frogs and Toads

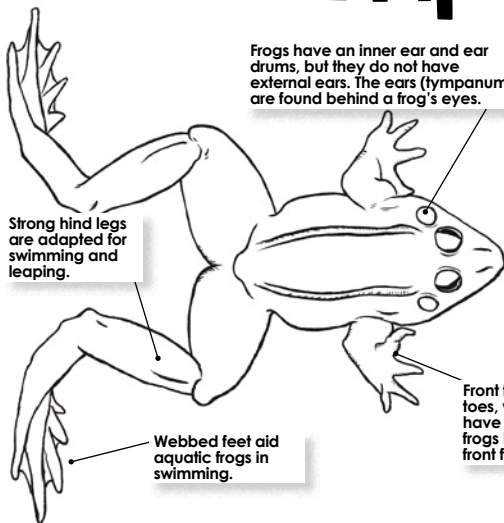
For many centuries, the name "toad" was applied to the European species of the genus *Bufo* while "frog" was the common term for other *Anura*, mostly of the genus *Rana*. The two are easily distinguishable in Europe and were originally regarded as two types of reptiles, like lizards or snakes. As such, frogs cannot be separated from toads. One is a family (toads) within an order (frogs).



Spotted shovel-nosed frog

Painted reed frog

## Adaptations



Frogs have an inner ear and ear drums, but they do not have external ears. The ears (tympanum) are found behind a frog's eyes.

They do not drink water but get all the moisture they need through their skin. They also absorb extra oxygen in this manner.

Frogs have great night vision and are sensitive to movement. Bulging eyes allow them to see in front, to the side, and partially behind.

Strong hind legs are adapted for swimming and leaping.

Webbed feet aid aquatic frogs in swimming.

Front feet have four toes, while hind feet have five toes. Some frogs have webbed front feet.

Most frogs have teeth. Teeth are used to grip their prey, but prey is swallowed whole.

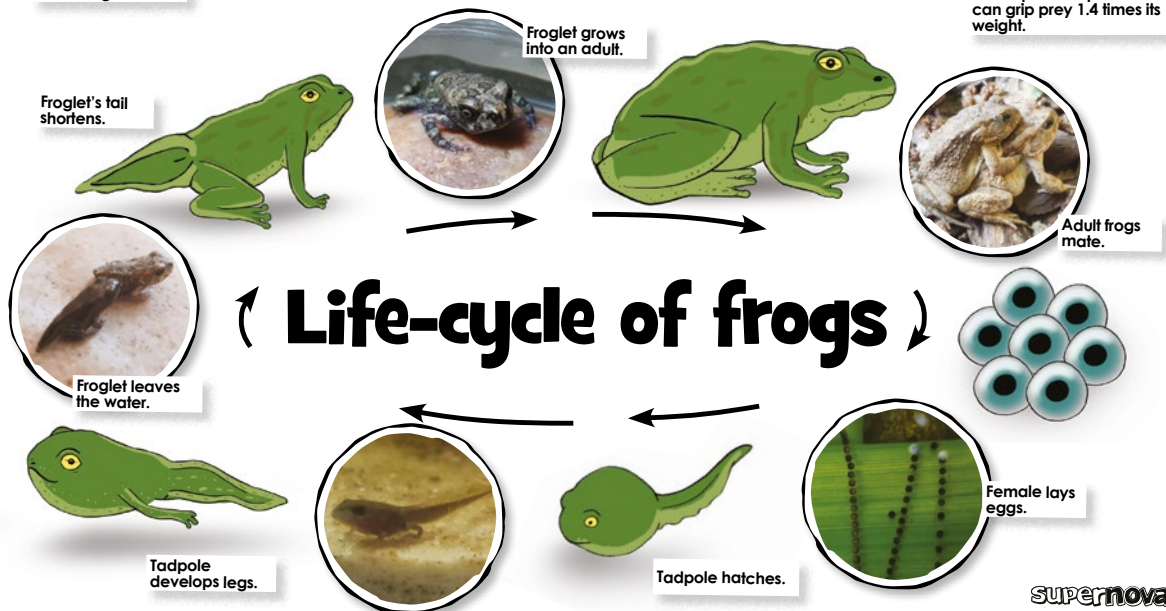
Male frogs have vocal sacs which, together with the vocal chords, produce loud, resonating vibrations.

A sticky tongue is used to catch and grip prey. The stickiness lies in its saliva which allows it to nab its prey at a super fast speed. A frog can grip prey 1.4 times its weight.

?! WHAT'S THIS...

**Arboreal** - animals that lives in trees.

**Fossorial** - animals that dig tunnels and burrows.



A few facts  
about five

# Fascinating Frogs



## Table Mountain Ghost Frog

*Heleophryne rosei*

- Only found in perennial streams on the eastern southern slopes of Table Mountain.
- About 63 mm in length.
- This frog is Critically Endangered.
- The tadpoles have a sucker-like mouth to help them to adapt for life in fast-flowing mountain streams.
- The genus occurs only in South Africa.

## Giant Bullfrog

*Pyxicephalus adspersus*

- Seasonal, shallow grassy pans in open flat areas of grassland or savanna.
- Up to 245mm in length.
- Have three odontoids (teeth) on lower jaw.
- Males are bigger than the females.
- A female lays up to 4000 eggs.
- Tadpoles form schools.
- The males have parental care.
- Cannibalistic.

?! GET THIS...

Frogs are a key barometer of the environmental state of the planet.



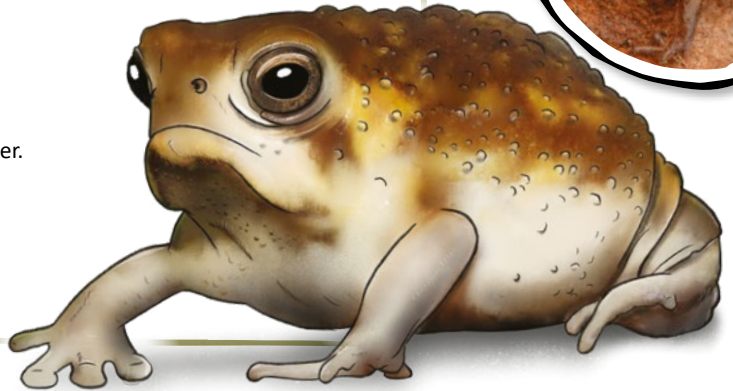
?! GET THIS...

Giant bullfrogs can weigh up to 1.4 kg.

# Bushveld Rain Frog

*Previcepes adspersus*

- Fossorial species (it is adapted to dig holes).
- About 60 mm in length.
- Cannot swim.
- Lay eggs in a subterranean egg chamber, not in water.
- Females more than double the size of males.
- This Genus only occurs in southern Africa.
- Lives in the grassland and savanna biome of Southern Africa.



# Foam Nest Frog

*Chiromantis xerampelina*

- Arboreal (lives in trees).
- Maximum size 85 mm.
- Often found in bathrooms or verandas in the Kruger National Park or other bushveld areas.
- Can change colour to white to reflect light and heat.
- Form foam nests above water.
- Many males and a female form a foam nest together.
- After 4-6 days the tadpoles drop into the water.
- Bushveld area of southern Africa.



Tadpoles develop in foam.

# Common Platanna

*Xenopus laevis*

- Totally aquatic.
- Up to 147mm in length.
- The tadpole looks like small barbel fish.
- Only frogs with claws in southern Africa.
- The Genus occurs only in Africa.
- Occurs in most of South Africa.



## ?! GET THIS...

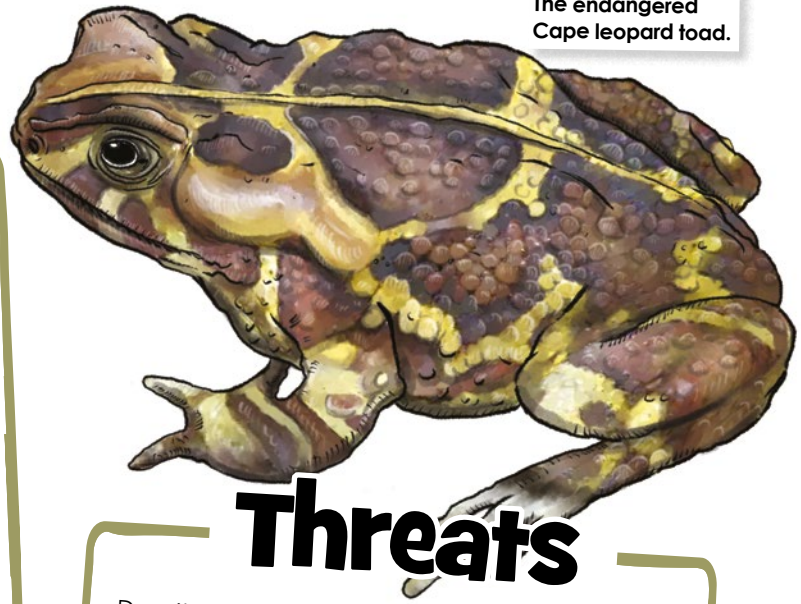
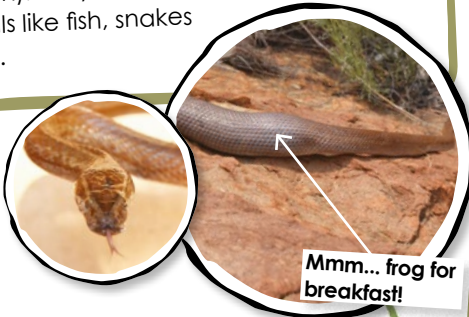
Between the 1930s and the 1950s, live South African platannas were used around the world to determine if women were pregnant. The process was called the Hogben test.

# Importance of frogs

Though most of us have not paid much attention to frogs, it's time to take note. These animals play an important role in the environment:

Frogs are indicator species. Their skins are permeable, which means that things can pass through them. They can absorb most things in the environment through their skin. Frogs can show us if the environment is contaminated with pollution, because their health would be affected. Their ability to both live on land and in water helps scientists to determine the health of the ecosystem of an area.

They are important to the food chain. Frogs are both predators and prey, which means that they feed on algae, as tadpoles, which keeps the water clean, and, once fully-grown, they feed on insects (which controls the bug population). They are also the meal of choice for animals like fish, snakes and birds.



# Threats

Despite their importance to the environment, frogs face many threats, such as habitat destruction (because of farming, forestry and urban development); climate change; the thinning of the ozone layer (which is causing exposure to harmful radiation in sunlight); chemical pollution; people using frogs for food or as pets.

Frog species in South Africa are also endangered or vulnerable. The Western Leopard Toad is now considered to be endangered. This species is found in the Cape Peninsula. Most of its habitat is threatened by the destruction of wetlands and urban development. Efforts have been made to encourage research, monitoring, fund raising and volunteer work to conserve this and other frog species of the region. The Western Leopard Toad Conservation Committee works to create awareness of these threatened species and are involved in conservation, like removing alien plants, eco-friendly gardening and eco-friendly urban management.



**Frogs are fragile and their environment is even more fragile. Keep your eyes peeled and learn more about all the species in your area, but also alert the authorities if you see that their environment is under threat.**



Be gentle when you handle frogs.

Reduce Reuse Recycle



# HOW TO FOLD AN ORIGAMI FROG



THE ART OF ORIGAMI IS FASCINATING. WITH ONLY A SINGLE SHEET OF PAPER THERE IS NO LIMIT TO WHAT YOU COULD FOLD. USE THESE SIMPLE STEPS TO MAKE A FRIENDLY FROG FOR YOUR DESK.



STEP 1



STEP 2



STEP 3



STEP 4



STEP 5



STEP 6



STEP 7



STEP 8



STEP 9



STEP 10



STEP 11



STEP 12



STEP 13



STEP 14

# CARS THROUGH THE AGES

It's difficult to pin point who built the first car, since there were several innovative engineers who secured patents for their genius engine designs and car designs. We are going to zip through all the major game changers in the car industry. Time to buckle up as we drive you through the history of the automobile.

## 1870

Siegfried Marcus built the first gas-powered engine. He introduced a gasoline-powered engine in 1880. He later added steering, a clutch and a brake to his design.

Words by Chené Da Conceicao De Freitas

FOLLOW THE ROAD

START

## 1769

The first steam-powered automobile that could transport humans was built. It weighed 2.5 tons, with one front wheel and two rear wheels. This giant, metal tricycle moved at a whopping 3.6km p/h!



▲ Second Marcus Car of 1888



▲ Second model of the steam-powered automobile (1771).

## 1885

Karl Benz built a simpler gasoline engine of his own and fixed it to a three-wheel carriage. This was the first practical gas-powered car.



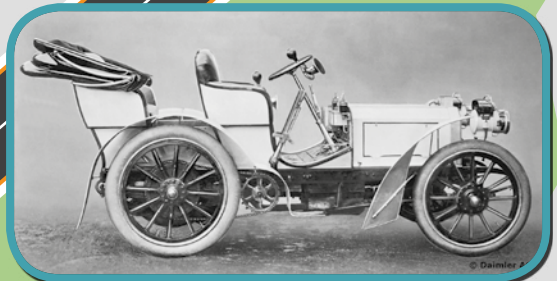
▲ The 'Lohner Porsche' still in mint condition today

## 1900

Ferdinand Porsche unveiled his 'Lohner Porsche', an electric car. The Lohner-Porsche 'Semper Vivus' went down in history 111 years ago as the first functional hybrid car.



▲ On January 29, 1886, Karl Benz applied for a patent for his "vehicle powered by a gas engine." The patent - number 37435 - may be regarded as the birth certificate of the automobile.



▲ The first Mercedes model series

## 1901

A new Daimler model was made. It was named after Mercédès, the daughter of a Daimler car dealer.

## 1910s

Henry Ford's Model T (nicknamed "Tin Lizzy") became a revolutionary car of this decade. Another popular vehicle was the Buick Model 35, created by the Buick Motor Company, which later became General Motors.



▲ The Cadillac Type V63 on auction in 2014. It sold for roughly R760 000, which is about ten times more than the original price. Who said cars lose their value over time?



## 1920s

The Cadillac Type V63 was the luxury vehicle of choice until the Rolls Royce roared its way through the twenties with the Silver Ghost, the Phantom I and the Phantom II.



## 1930s

The Duesenberg Model J became popular. The "supercharged version" could reach a top speed of up to 225km p/h and 0-100 km p/h in eight seconds – not too shabby for an 80-something-year-old car!



▲ The Duesenberg Model J

## 1940s

The Willys MB was a US military vehicle that saw front line action in World War II. This model was followed by the Willys CJ2A – a civilian Jeep that resembled its military ancestor. The VW Beetle was also popularised as "the people's car".



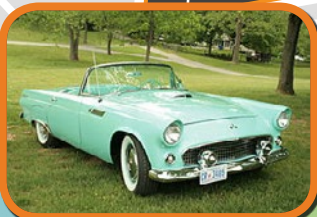
▲ Punch buggy!



▲ The Willys MB Jeep

## 1950s

Three prominent vehicles came to be: The Chevrolet Bel Air (one of the first cars to come with power steering), the Ford Thunderbird (nicknamed "T-Bird") and the Mercedes-Benz 300SL (a stylish sports car).



▲ Ford Thunderbird



▲ The Chevrolet Bel Air



▲ The Jaguar E-Type

## 1960s

There were three major contenders in this decade – the Jaguar E-Type (which reached a top speed of 241km p/h) and the Ford Mustang.



▲ Mercedes-Benz 300SL



▲ The Ford Mustang

▲ Punch buggy!

## 1970s

This was the decade of the Pontiac Firebird and the Cadillac Eldorado – a 3.2m long personal luxury vehicle reaching a top speed of 289km p/h. Later the Chrysler Cordoba and the Lincoln Continental Mark IV hit the market. The Lincoln reached a top speed of 190 km p/h.



▲ Pontiac Firebird



▲ Cadillac Eldorado



▲ Continental Mark IV



▲ Chrysler Cordoba

## 1980s

The Lamborghini Countach and Ferrari Testarossa sped by – it's hard to tell who ate whose dust! The Countach was the first car with scissor doors.



▲ Ferrari Testarossa



▲ Lamborghini Countach



▲ Koenigsegg CCX

## 1990s

The podium was shared by the Mazda RX-7 and Honda NSX. The RX-7 was small and lightweight. The NSX benefitted from advanced aerodynamics and styling inspired by an F-16 fighter jet cockpit.



▲ Mazda RX-7



▲ Honda NSX



▲ Ferrari Enzo



▲ Pagani Zonda



▲ Bugatti Veyron

# FINISH

Through the ages, cars have gone from the most basic inventions to high-tech gadgets that epitomise how much humans have advanced in a relatively short span of time. There's no doubt that we will soon see flying cars and maybe even cars that can travel to space! Who knows what human innovation and technology will come up with next?

## 2000s

This decade was filled with some of our personal favourites. First up, Pagani Zonda – designed and manufactured by Mercedes-Benz AMG, and the Zonda F. Next up was the Ferrari Enzo, which was built using F1 technology. Joining the race was the Bugatti Veyron – with a top speed of 409km p/h it was named 'Car of the Decade' and 'Best Car Award' by the BBC television programme *Top Gear*, as well as 'Best Car Driven All Year' award in 2005. Not far behind is the Koenigsegg CCX with a top speed reaching over 395km p/h! See why we can't choose just one?



## What you need:

# BALLOON BOTTLE CAR

Throughout history, cars have used different fuel sources to power their engines, like diesel, gasoline, steam and solar power. Make your own air-powered balloon-car and challenge your friends to a balloon-car race!



### Step 1

Make four holes using the scissors to form your wheel axles. The holes must be parallel in width and length for the axles to align. Make sure your holes are smooth enough for the chopsticks to turn easily.

Axle at bottle opening:  
8cm from the top (4cm apart).

Axle at bottom axis:  
5cm from the bottom  
(4cm apart).

Tip: Experiment with different size wheels, bottles and materials to see which design moves the fastest.

### Step 4

Attach the bottle caps to the sticks.

### Step 5

Use sticky-tape to tape the balloon tightly onto the end of the straw (you should still be able to inflate it!).

### Step 2

Cut off the sharp side of the chopstick and insert into the holes to form the two wheel-axes.

### Step 3

Make a hole in the centre of each bottle cap, small enough for the stick to fit tightly.

### Step 6

Tape the straw on top of the bottle, with the balloon resting on the back of the bottle.

**Driver's ready! Blow up your balloons - go!**



# Frida Kahlo

THE PAINTER WHO WASN'T AFRAID TO BE HERSELF

When she was 16, Frida Kahlo became one of the first girls accepted into a very fancy and prestigious school in Mexico. She wanted to become a doctor but something terrible happened that changed her life forever



## THE ACCIDENT

When she was 18, Frida was on her way home from school when the wooden bus she was in smashed into a metal street car. The accident almost killed her, breaking her spine, collarbone, many of her ribs, and her right leg and foot. She spent a month in hospital and two more in bed at home.



Imagine being stuck in bed for three months in the days before TV, smartphones or the internet. It would be like prison! Frida got very bored and began drawing and painting on the cast that covered her body.

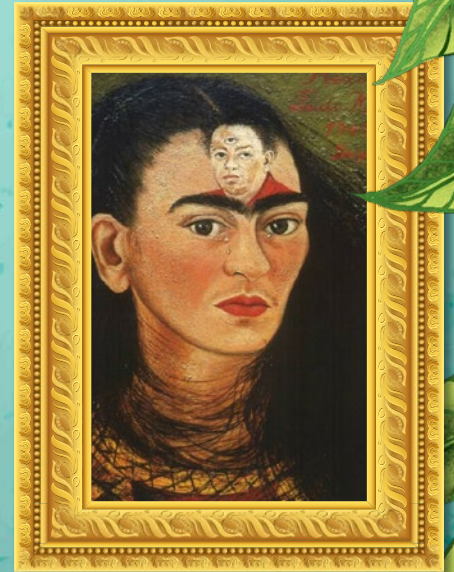
Frida's dad set up a special easel (a stand that painters use to support their canvases) so that she could paint while lying down in bed. When she was finally able to walk again, Frida decided to become a painter instead of a doctor.

## LATER

Frida married another painter, Diego Rivera. He was 21 years older than her, and much taller and larger. Some people nicknamed them, "The Elephant and the Dove".

**"At the end of the day,  
we can endure much  
more than we think we  
can."**

— Frida Kahlo



While she was alive, most newspapers just called Frida "Diego Rivera's wife". They didn't pay much attention to her art because she was a woman. She only got her first solo exhibition a year before she died.

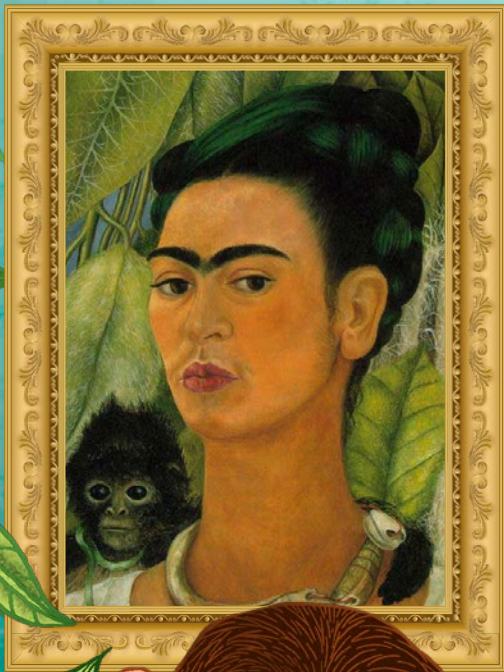
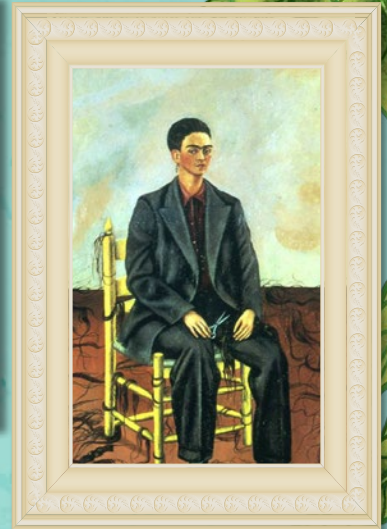


## HER POPULARITY

But now, a hundred years on, Frida is more famous than Diego. She created over 140 paintings in her life, and 55 of them are self-portraits (when an artist paints or draws themselves). Some people think Frida's paintings are scary or weird, but Frida was trying to paint how she felt, not exactly how the world is.



The bus accident affected Frida for the rest of her life. Even though she really wanted to have a family with Diego, the accident had hurt her uterus (the part of a woman's body where babies grow), so she couldn't get pregnant. She had to have surgery 35 times after the accident. When she was 46, her right foot had to be amputated (cut off). She died a year later.



## WHY SHE'S INSPIRING

Frida was never afraid of being weird, and she didn't let people tell her how she should express herself or live her life. She often wore men's clothes, or very bright colours. She grew her eyebrows into one long big eyebrow, called a unibrow.

Even though she had a very difficult life and was often in a lot of pain, Frida didn't let this make her bitter or grumpy. When you read her diary (it was published in 2005), you can hear the voice of a woman who was strong, joyful, and not afraid to be herself and make the art she wanted to make.

**"Nothing is worth more than laughter. It is strength to laugh and to abandon oneself, to be light."**

– Frida Kahlo

I can do that!

# Flower Crown

Be inspired by Frida Kahlo and make your own colourful flower crown.

What you will need:

tissue paper  
scissors  
twist ties  
a ruler  
a headband



What to do:

1 Cut four rectangular pieces of tissue paper, 24cm in length and 20cm in width.

2 Place the rectangles on top of each other.

3 Fold the tissue paper length in 1-2cm pleats.

4 Secure the middle on the open side with a twist tie, do not cut off the extra pieces.

5 Cut the end in a round shape for a petal effect, or in sharp points.

6 Fold the two sides together and very carefully open the flower, tissue paper is very delicate.

7 Use part of the remaining twist tie piece and loop it around the bottom of the flower, to keep the two sides together.

8 Secure your flowers to the headband with the remaining twist tie piece.

9 Make a few more and secure to headband.

For a different colour centre, add a different colour tissue paper, 24cm length and 20cm in width, place in centre, fold your pleats etc. Now when you open your flower, the centre will be another colour.

# LEGENDARY!

## 6 FUN SOUTH AFRICAN MYTHS

Words by Aimee-Claire Smith

Illustrations by Johann Smith



Have you ever sat around a campfire telling stories? People love telling stories. Some stories are told so many times that everyone knows them. They become a myth, or a legend.

Most legends start with a true story that gets repeated so many times by so many different people, that the details get all confused. Nobody knows what's true anymore, and what isn't.

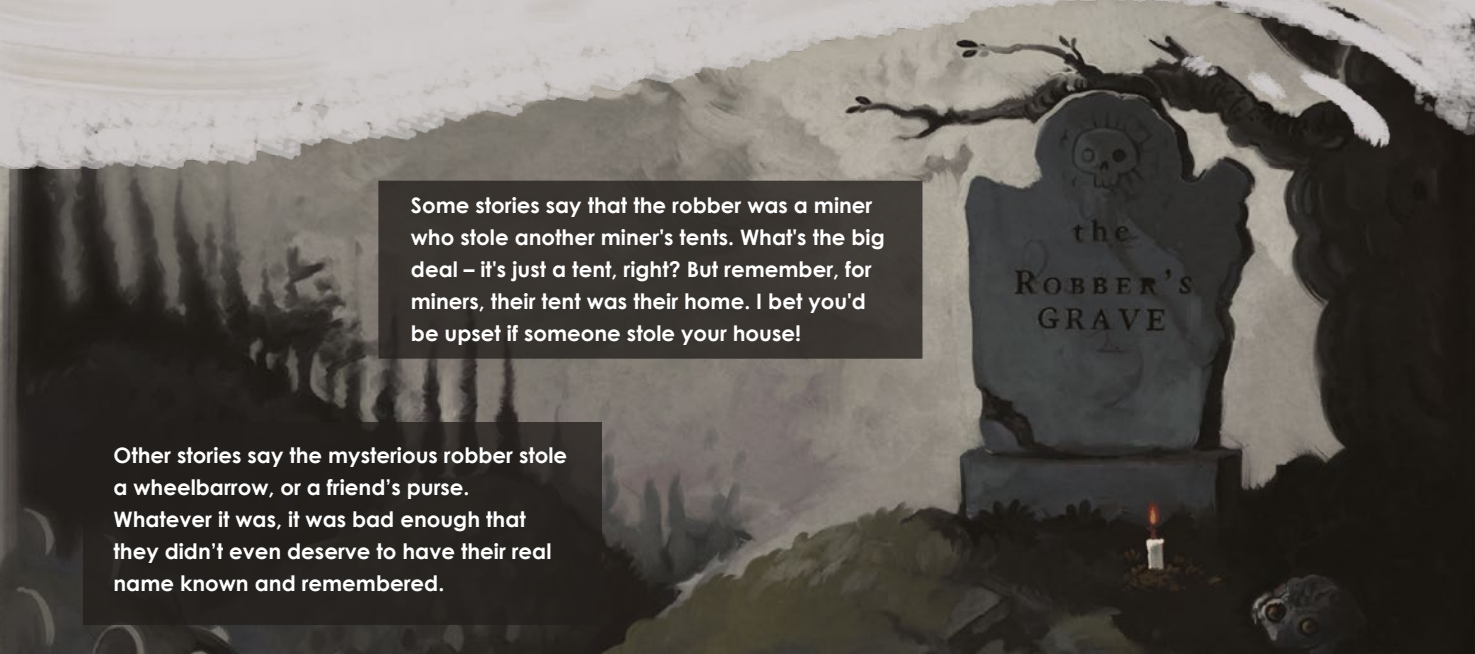
Was there really a man called Robin, who stole from the rich and gave to the poor? Did king Arthur ever really have a round table? Historians aren't sure, but it's fun to believe that it's true.

Here in South Africa we have some exciting legends of our own. You probably know the famous one about Jock of the Bushveld – the dog who travelled the country with his owner, a gold-digger and trader. But what other stories does our country have to tell?

# THE ROBBER'S GRAVE

Less than two thousand people live in Pilgrims Rest, a tiny old mining town in Mpumalanga. But despite how small it is, it's home to one of South Africa's biggest unsolved mysteries:

Although all the graves face east in the graveyard, one grave faces north. There's no name or date on the gravestone, only the words: "The Robbers Grave". Who was 'The Robber'? What did he, or she, steal?



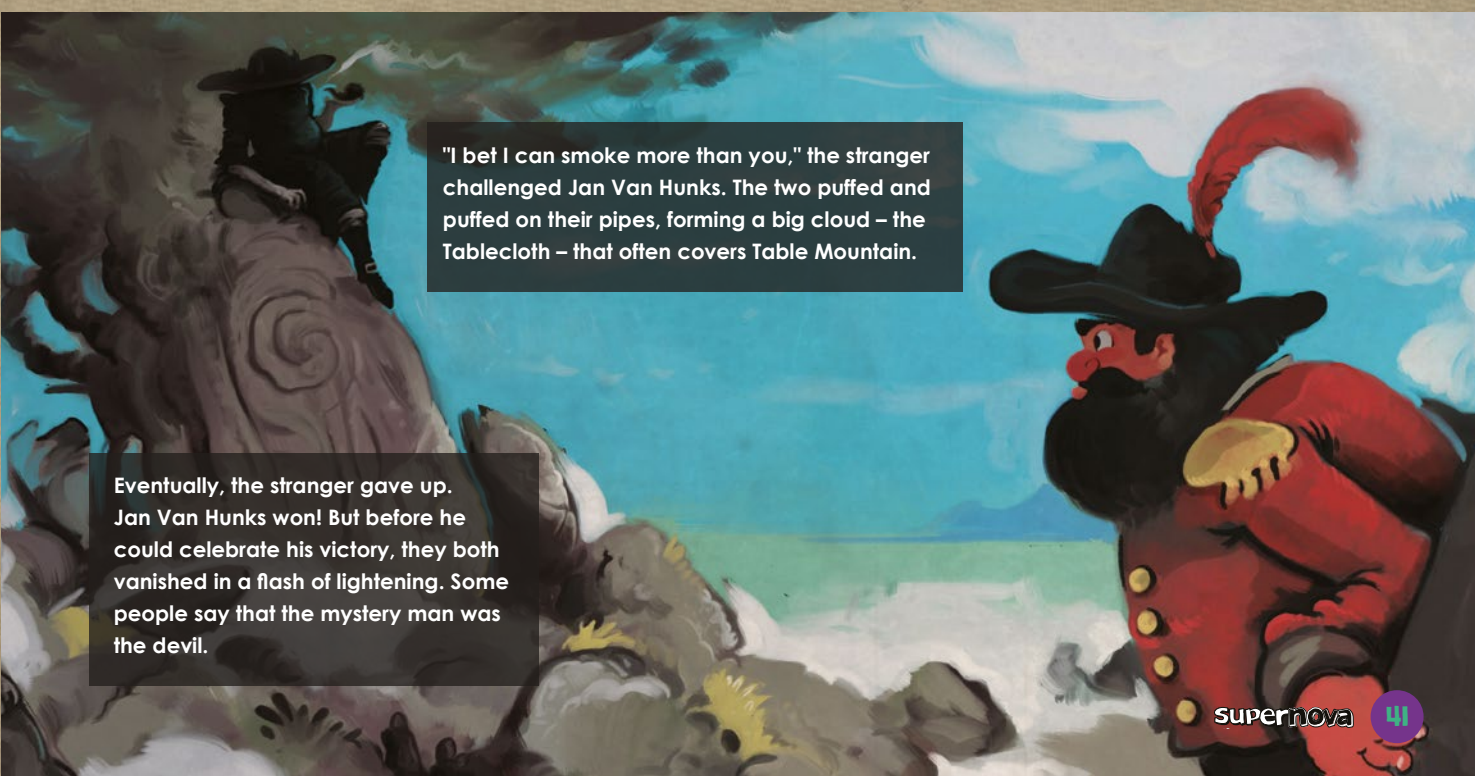
Some stories say that the robber was a miner who stole another miner's tents. What's the big deal – it's just a tent, right? But remember, for miners, their tent was their home. I bet you'd be upset if someone stole your house!

Other stories say the mysterious robber stole a wheelbarrow, or a friend's purse. Whatever it was, it was bad enough that they didn't even deserve to have their real name known and remembered.

# HOW DEVIL'S PEAK GOT ITS NAME

On either side of Table Mountain are two smaller mountains, Lion's Head and Devil's Peak. It's easy to see how Lion's Head got its name, but what about Devils Peak? Devil's Peak used to be called The Windberg – which makes sense, if you think about how windy Cape Town is!

Nobody's sure why people started calling it Devil's Peak, but there's a fun story about a pirate from Holland, named Jan Van Hunks. He liked to sit on the mountain, smoking his pipe and enjoying the beautiful view. One day, he found a man sitting in his favourite spot, smoking.

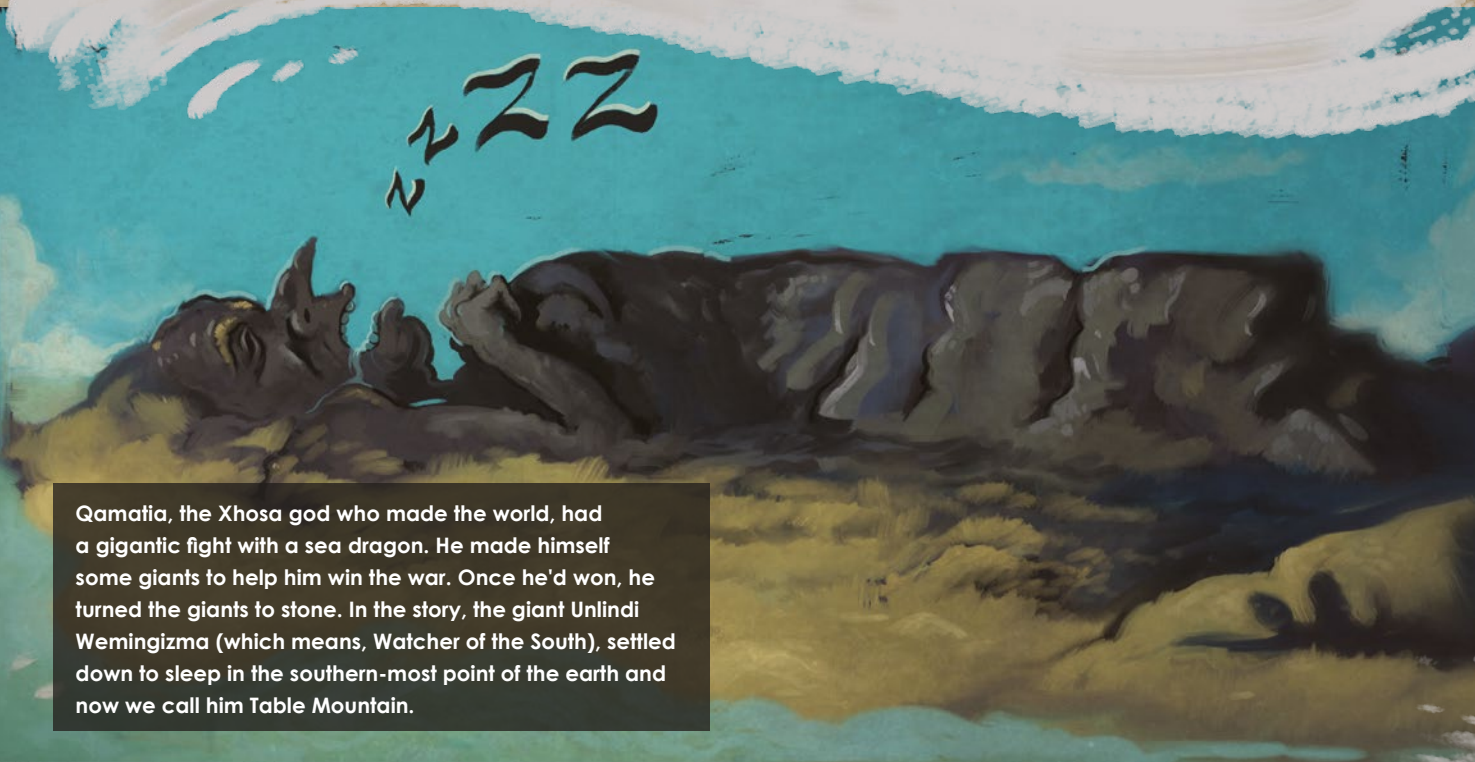


"I bet I can smoke more than you," the stranger challenged Jan Van Hunks. The two puffed and puffed on their pipes, forming a big cloud – the Tablecloth – that often covers Table Mountain.

Eventually, the stranger gave up. Jan Van Hunks won! But before he could celebrate his victory, they both vanished in a flash of lightning. Some people say that the mystery man was the devil.

# THE SLEEPING GIANT

Do you think Table Mountain looks like a huge giant taking a long nap? There is a Xhosa folktale that goes like this:



Qamata, the Xhosa god who made the world, had a gigantic fight with a sea dragon. He made himself some giants to help him win the war. Once he'd won, he turned the giants to stone. In the story, the giant Unlindi Wemingizma (which means, Watcher of the South), settled down to sleep in the southern-most point of the earth and now we call him Table Mountain.

# HAIRY TROUBLE-MAKERS

Why would someone put bricks under their bed? In Zulu mythology, there's a small creature, called a tokoloshe, that loves making trouble. Tokoloshe are short and very hairy, with two animal horns like a baby goat.

If any man sees one, he sees how ugly it is, but tokoloshe can cast spells that make women think they're very handsome.

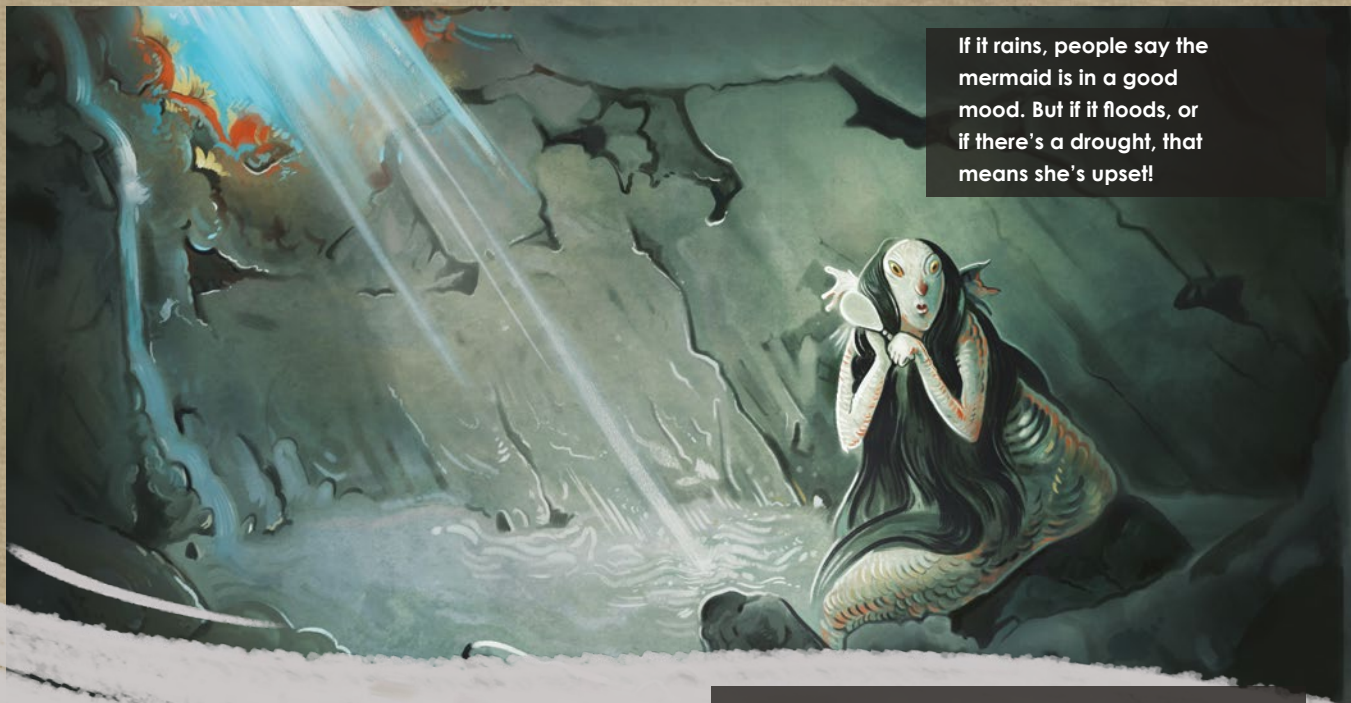


The legends say that the only way to keep tokoloshe away is putting bricks under the legs of your bed. Some people use the bricks even if they don't believe in tokoloshe, just to be safe!

# MERMAID OF THE DESERT

Why would there be cave paintings of mermaids up in the hills of the Karoo – a big desert in the western half of South Africa far away from any sea? Some stories mention a mermaid who lives in rockpools,

brushing her beautiful, long black hair. Parents in the Karoo warn their children that if they swim in the dangerous rock pools, the mermaid will steal their clothes, or even drown them.



If it rains, people say the mermaid is in a good mood. But if it floods, or if there's a drought, that means she's upset!

# THE LIGHTNING BIRD

Science teaches us that thunder and lightning are made by electricity and air in the clouds.

Stories from Xhosa and Zulu people in the Eastern Cape tell of a creature called the Impundulu, which means, 'Lightning Bird'.

He has black and white feathers and is as big as a man. When the great Impundulu flaps his huge wings, it makes thunder. And when he comes down to earth to lay his eggs, lightning strikes the ground.



The legend says that the Impundulu is immortal – which means he can live forever – and that the only way to destroy him is with fire.



Have you ever wondered what it might be like to fly (have wind blowing around you and adrenaline rushing through you while you defy gravity) without being on an airplane or using a parachute?

Try indoor skydiving!

# Indoor skydiving

Words by Keegan Rothman



## The basics:

Indoor skydiving simulates the experience of skydiving without you jumping out of a moving plane or facing your fear of heights. To do it, you need a vertical wind tunnel. There's a giant fan inside the tunnel that generates wind and pushes it up in a vertical column and lets you hang and fly in the tunnel.

## The Wind Games:

The Wind Games are an indoor skydiving tournament that's been taking place since 2014 in Empuriabrava, Spain. There are five different disciplines in the Wind Games: Formation Skydiving, Vertical Formation Skydiving, Freestyle, Speed Races and 2 Way Dynamic.



Photos kindly supplied by Windoor. For more about the Wind Games, go to [windoor-reallyfly.com](http://windoor-reallyfly.com)

# The Champions!



## Formation Skydiving:

A team of four flyers performs a sequence of horizontal formations correctly as many times as possible within ten rounds of 35 seconds. They score more points every time they complete the sequence.

## Freestyle:

There are two types of rounds in the Freestyle discipline: compulsory rounds and musical rounds. In the compulsory rounds, a flyer performs three compulsory moves while being judged on their sequence's technical difficulty, creativity and execution. In the musical round, the flyer performs a sequence to a piece of music they've chosen.

## 2 Way Dynamic:

There are two rounds in the 2 Way Dynamic discipline: free rounds and speed rounds. In the free rounds, a team of flyers perform an artistic routine with moves of their choice. They're allowed to make up their own formations to show off their individuality. In the speed rounds, the flyers perform three different sequences, three times in a row, as quickly as possible.

## Speed Races:

These consist of the solo speed race, four speed race and relay race. In the solo speed race, a flyer performs a sequence of moves in the shortest amount of time possible without making mistakes. In the four speed race, a team of four flyers compete instead of just one flyer. In the relay race, four flyers complete a sequence of moves as quickly as possible after one another. Each flyer pushes a button to start the timer when their turn begins and stop it when their turn ends.

## Vertical Formation Skydiving:

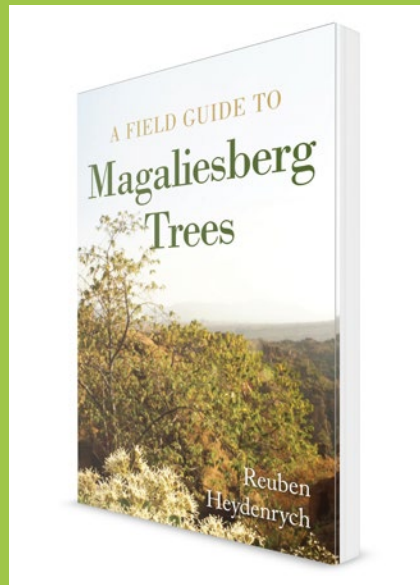
Vertical formation skydiving is the same as formation skydiving. The difference is that the four flyers have to perform vertical formations instead of horizontal ones. There are only eight rounds of 35 seconds instead of ten.



As human beings, our lack of wings makes it hard for us to imagine what it would really be like to fly, but indoor skydiving offers us an exhilarating chance to find out what it would be like to soar through the sky. If you got a chance like this to 'fly', would you take it?



I came across two really great books. Hannah Hundermark (age 10) sent us a great review of *A to Z of Amazing South African Women* and the Supernova team helped put together a Field Guide to Magaliesberg Trees.



**A Field Guide to Magaliesberg Trees**  
by Reuben Heydenrych

Have you ever hiked in the Magaliesberg and seen a particularly interesting tree but didn't know what it was? There are a wide variety of trees in the Magaliesberg and it's a very unique habitat for trees to grow in, so it's easy to come across something no grown-up recognises. This book solves that problem entirely! Make sure to carry it in your day bag, so you can whip it out any time you need it.

AVAILABLE AT [KIDSMAG.CO.ZA](http://KIDSMAG.CO.ZA)

Why I really like *A to Z of Amazing South African Women* by Hannah Hundermark (age 10)

At school we only learn about people from the olden days, so it's nice to also learn about modern women who are alive. ☺

Three years ago I had to do a project about famous people at school. We had to choose one person from a list of 15 of which 3 were women and 12 were men. I was upset to see this, I chose Olive Schreiner because nobody else chose her. When mama bought the book for me, I was so happy to see Olive Schreiner in it, but also other very cool women like Dope Saint Jude.

AVAILABLE IN ALL GOOD BOOKSHOPS

# Lost & Found

I aspire that I alone identified all the eyes that retire inside this flyer. How about you? Could you do that too?

Send us the correct answers and we'll add a free magazine to your subscription.

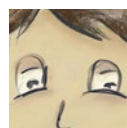
a)



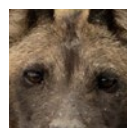
b)



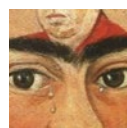
c)



d)



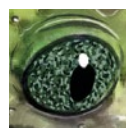
e)



f)



g)



h)

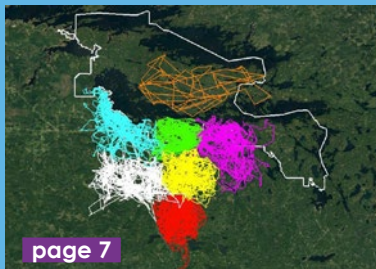


Answer example:  
a) page 10

# Solutions

## What in the World?

This map shows how incredibly territorial wolves are. Scientists attached GPS collars to six Minnesota wolves in order to track their movements through the woods.



The data on the map shows how the woods are divided into specific territories by wolf packs. The borders are as precise as country borders!

This information helps provide detailed accounts of pack movement and allows researchers to better understand wolves.



## FLAGS OF THE WORLD

-  A1 - Albania
-  A2 - Algeria
-  A3 - Australia
-  A4 - Britain
-  A5 - Canada
-  A6 - DRC
-  B1 - Germany
-  B2 - Italy
-  B3 - Lesotho
-  B4 - Morocco
-  B5 - Netherlands
-  B6 - New Zealand
-  C1 - Nigeria
-  C2 - North Korea
-  C3 - Portugal
-  C4 - Russia
-  C5 - Scotland
-  C6 - Seychelles
-  D1 - Singapore
-  D2 - South Korea
-  D3 - Spain
-  D4 - Switzerland
-  D5 - Uganda
-  D6 - UAE
-  E1 - Zimbabwe
-  E2 - Vietnam
-  E3 - Wales
-  E4 - Botswana
-  E5 - Mexico
-  E6 - Puerto Rico

## How to get in touch with *Supernova* Magazine

Phone us at: **012 342 5347**

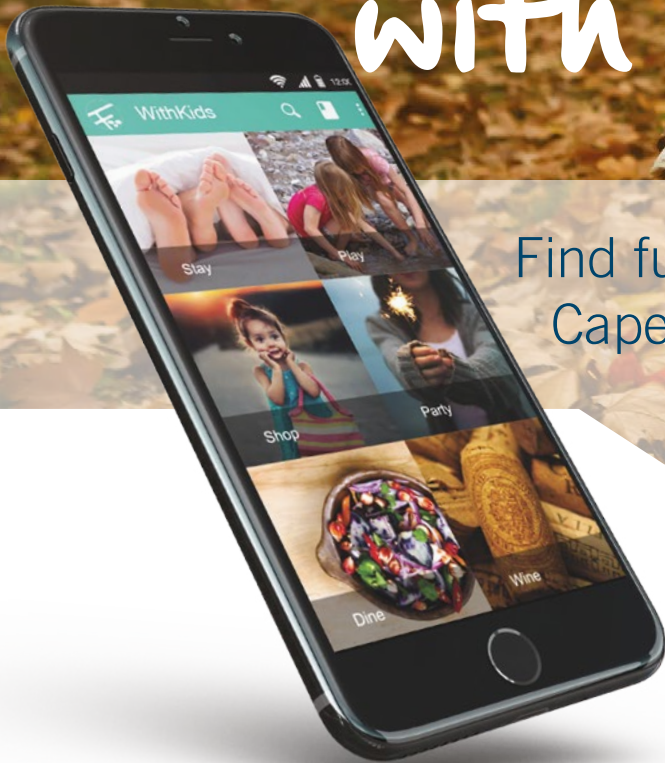
Email us at: **mail@kidsmag.co.za**

Send us a message on **Facebook** or **Instagram**





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Story and artwork  
Maya LeMaitre

# MIMI'S LIFE ON MARS



TINA IS REALLY INTO SCIENCE. SHE WEARS OVERALLS BECAUSE SHE LIKES TO RUN AROUND AND GET HER CLOTHES DIRTY.



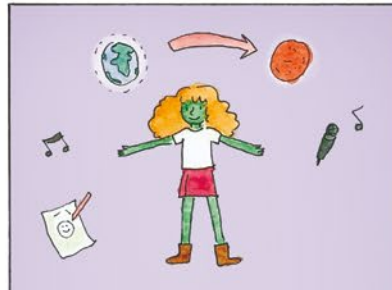
ON THE OUTSIDE SHE SEEMS TOUGH, BUT SHE REALLY CARES ABOUT HER FRIENDS AND FAMILY, AS WELL AS ANIMALS AND NATURE.



SHIREEN SEEMS SHY AT FIRST, BUT REALLY SHE'S CONFIDENT AND STRONG. SHE LIKES FASHION AND EVEN WEARS MAKEUP SOMETIMES.



SHE'S OBSESSED WITH BOOKS AND WANTS TO BE A WRITER WHEN SHE GROWS UP.



I'M SOMEWHERE IN THE MIDDLE. I'M KIND OF GIRLY, BUT NOT REALLY. I LIKE TO MAKE PEOPLE LAUGH. I LIKE TO ACT AND DRAW PICTURES.



MAYBE I SHOULD ALSO WEAR MAKE-UP. THEN AGAIN, MOM ONCE MADE ME DRESS UP FOR A FAMILY DINNER AND I HATED IT!



WE ARE DIFFERENT, BUT WE'RE STILL FRIENDS. WE MAKE EACH OTHER LAUGH, WE DO THINGS TOGETHER AND WE LISTEN TO EACH OTHER'S PROBLEMS.



...SO MAYBE IT DOESN'T MATTER THAT WE'RE NOT THE SAME.



I GUESS THERE ARE MANY WAYS TO BE A PERSON!

It's easy to

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Ages  
8-15



Supernova

Ages  
2-6



Highlights  
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Ages  
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